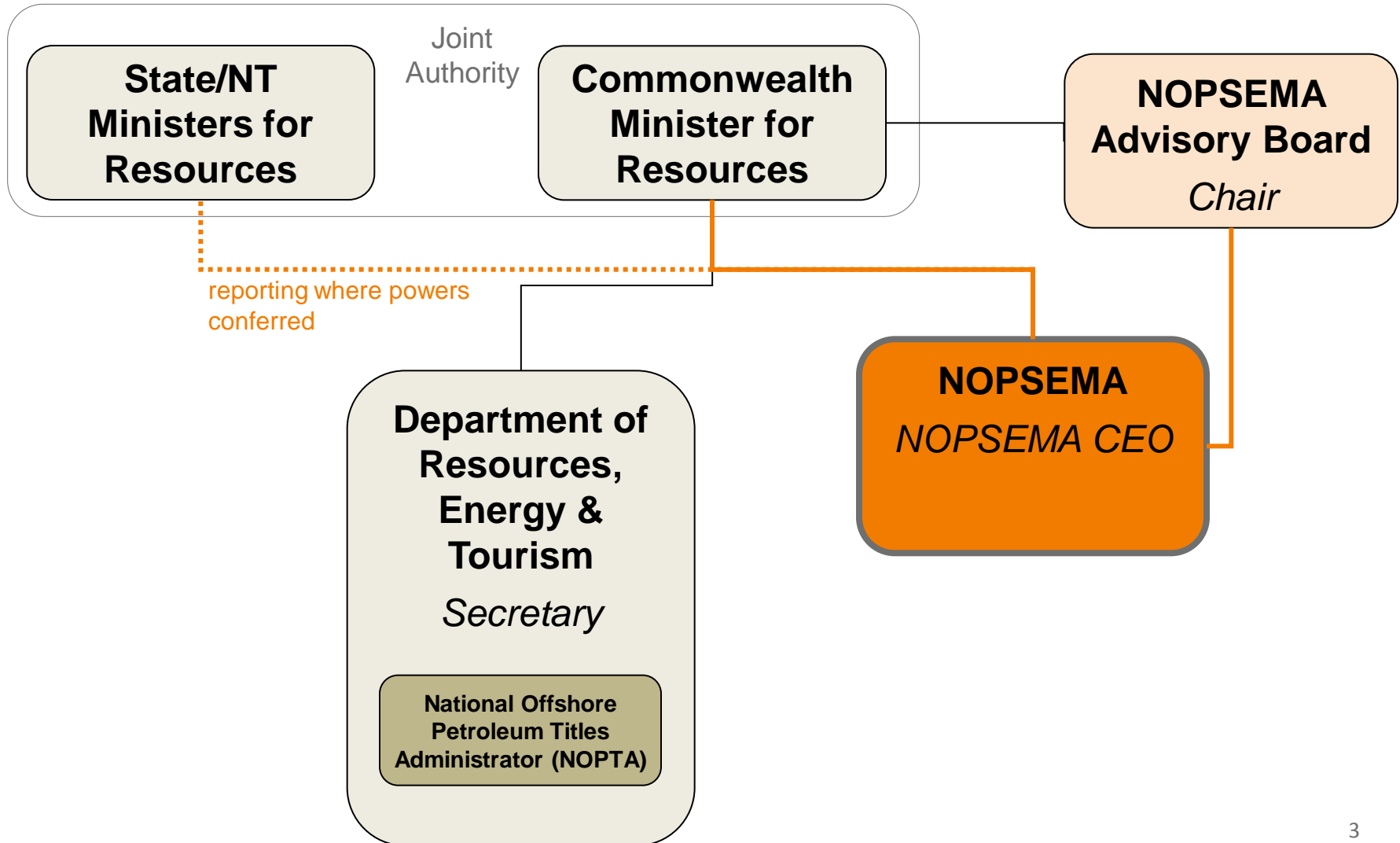


Well Integrity Regulation

Gavin Guyan

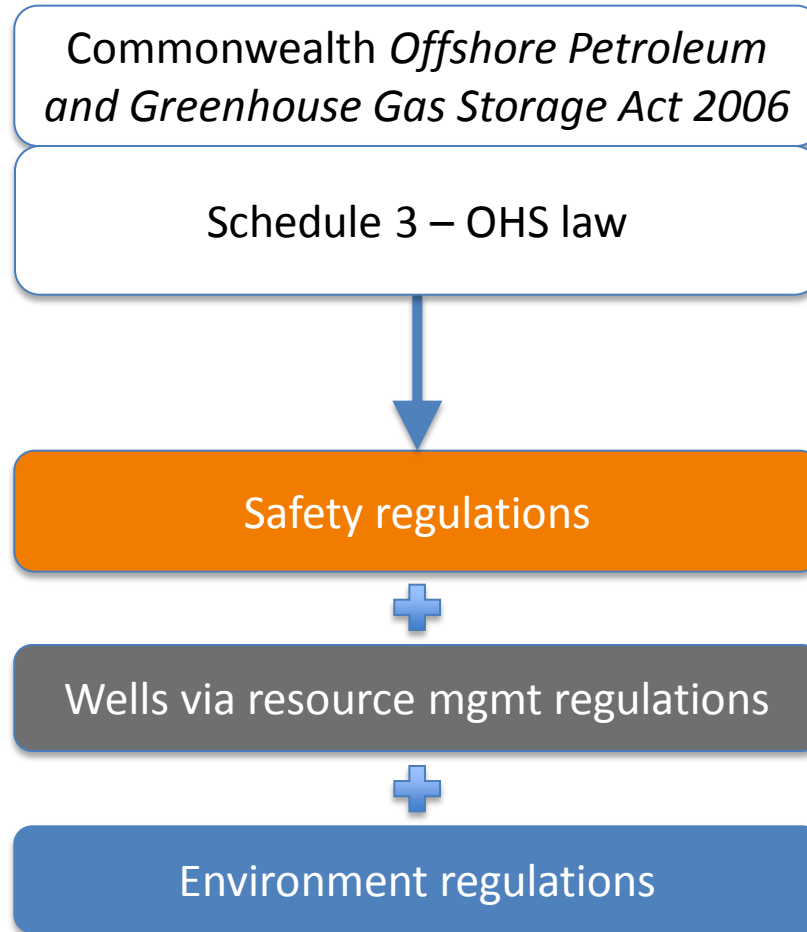
Manager – Well Integrity

- NOPSEMA
- Regulatory Framework
- Well Operations Management Plan
 - Safety case for Wells



- A ‘General Duties’ regime for offshore petroleum & greenhouse gas storage operations
- Performance-based, but with some prescriptive elements
- A duty holder’s management plan, accepted by NOPSEMA is a legally binding permissioning document:
 - **Well Operations Management Plan**
 - Safety case
 - Environment plan

Legislation administered by NOPSEMA



Assessment

- Independent, sampled evaluation of a duty-holder’s submission against the regulations
- Challenge duty-holders : ALARP demonstration - “Have you done enough?”

Inspection

- Independent, sampled inspection of the petroleum activity against the accepted permissioning document and regulations
- Challenge duty-holders: “Are you doing what you said you would do?”

Investigation

- Independent investigation to determine what went wrong and determine whether enforcement/prosecution is required
- Challenge duty-holders : “What wasn’t done? What can we learn?”

Enforcement

- Take action within powers under the Act and regulations to secure compliance

- NOPSEMA has *General, Remedial* and *Significant Incident* direction-giving powers
- *Significant Incident Directions* enable NOPSEMA to direct a titleholder, in the event of a significant offshore petroleum incident that has caused or might cause an escape of petroleum, to:
 - take action (prevent, eliminate, mitigate, manage or remediate) or not to take an action, and
 - may be unconditional or subject to conditions
 - the direction may apply either within or outside the titleholder's title area

- Performance-based regime that requires the titleholder to control well integrity hazards or risks where integrity means:
 - under control in accordance with an accepted WOMP
 - able to contain reservoir fluids
 - subject only to risks that have been reduced to a level that is as low as reasonably practicable
- Risks managed in accordance with sound engineering principles, standards, specifications and good oil field practice



- NOPSEMA replaced the State Regulator as the regulator for wells in Commonwealth waters (April 2011)
- NOPSEMA decides:
 - WOMP acceptance/rejection
 - individual well activities approval / rejection
- Integrity definition includes that the well is subject only to risks have been reduced to a level that is as low as reasonably practicable



- **WOMP is a permissioning document**
 - Owned by titleholder;
 - Legally binding commitment by titleholder
 - Regulator role is assessment (acceptance/rejection decision) and subsequent compliance monitoring through inspection.
- **WOMP must:**
 - be appropriate to the wells and well activities contemplated
 - be a stand-alone document that is sufficient to meet the contents & level of detail requirements of the regulations without need to refer to other documents external to the WOMP.

- WOMP to provide for:
 - Identification of hazards and assessment of risks;
 - Implementation of measures to eliminate the hazards or otherwise control the risks to ALARP;
 - A comprehensive and integrated system for management of the hazards and risks; and
 - Monitoring, audit and review

- Adopted control measures for any particular identified risk must be shown to collectively eliminate, or reduce that risk to a level that is as low as is reasonably practicable.
 - by reasoned and supported arguments, that there are no other practical measures that could reasonably be taken to reduce risks further.
- The ALARP argument will be underpinned by the adoption of appropriate performance standards, sound engineering principles, specifications, good oilfield practice and the implementation of a management system which supports and maintains them.



- Be appropriate
- Explain philosophy and criteria; company policies and processes that are the basis of the design, construction operation and management of the wells
- Identify risks & controls - demonstrate well integrity risks are reduced to ALARP
- **Include performance objectives, standards & associated measurement criteria**
- **Explain how a well integrity hazard or increase in risk will be managed => contingency planning.**



- Where those conducting operations are unaware of the actual situations they are in
 - Tendency to interpret events in context of previous experience despite evidence to the contrary (Mind-set Factor)
 - Management failure to ensure that members of the workforce have the ability to identify, diagnose and respond to abnormal events (Competence Factor)
- One of the final barrier failures in the unfolding of large scale accidents

- Organise in such a way that you are better able to notice the unexpected in the making and halt its development
- Use the WOMP
 - Clear performance standards & measurement criteria
 - Clear MOC triggers & risk assessment methodology



Example - Abandonment

- Reduce HS&E risk to ALARP:
 - **Technical Objectives:** Isolation & Separation of permeable zones from surface and each other.
 - **Pre-requisites:** Identification of hydrocarbon / aquifer formations
 - **Definition of Barrier Elements:** Nature, Design & Construction
 - **Verification Criteria:** Measurable & Definitive
 - **ALARP basis:** Engineering principles, industry standards, good practice.



Thank You